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ABSTRACT

This document reviews the 1972 conference for new science department chairmen at public institutions held at Snowmass-at-Aspen, Colorado, June 1972. Highlights of the conference cover three major aspects: the chairman within the college structure; the chairman, his faculty and staff; and the chairman and his students. The first section emphasizes the relationship with the administration and the goals of the institution, coordination of the department with the nonacademic departments, and coordination of the department with other academic departments. The second section reviews program planning; creation of a distinctive department; hiring, promotion and tenure practices; and financing the department. The third section reviews the students' role in departmental affairs, recruitment of students, the chairman's role in the students' future, and the training of graduate teaching assistants. A 23-item bibliography is included. (MJM)

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Notes on the 1972 Conference for New Science Department Chairmen at Public Institutions

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Notes on the 1972 Conference for New Science Department Chairmen at Public Institutions

Silver Tree Inn
Snowmass-at-Aspen, Colorado
June 26 - 30, 1972

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405 Lexington Avenue
New York, N.Y. 10017

1972 Conference for

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Contents

	Page
Foreword	1
Perspective - Accountability to Science and Society	5
The Chairman Within the College Structure	
Relationship with the Administration and the Goals of the Institution	8
Coordinating the Department with the Non-Academic Departments	15
Coordinating the Department with the Other Academic Departments	18
The Chairman, His Faculty and Staff	
Program Planning	23
Creating a Distinctive Department	26
Hiring, Promotion and Tenure: Staff Evaluation and "Creeping Legalism"	29
Financing the Department	40
The Chairman and His Students	
The Students' Voice in Departmental Affairs	45
Recruiting Students	47
The Chairman's Role in the Students' Future	50
Training Graduate Teaching Assistants	53
Summary Statements	57
Bibliography	60

FOREWORD

The chairman of an academic department holds a unique position, serving both as administrator and faculty member. It is a key post, one of the most powerful on the campus and one which can determine the fate of the department and influence the overall health of the institution.

Chairmen are often selected, however, on the basis of their superior performance as faculty members and on only their promise as administrators. They may take up their new jobs with little or no preparation, unaware of the implications of their new duties. Yet, starting almost immediately, the decisions they make can have critical and long-lasting consequences for their departments and their institutions.

In visiting and revisiting hundreds of colleges and universities over a quarter of a century, members of the Grants staff of Research Corporation had watched science departments suddenly come alive -- or start to fail -- with the advent of a new chairman. It seemed likely that some of the failures could have been averted if, somehow, the new heads could have been helped to grasp more quickly the full range

of responsibilities and opportunities in their new role.

It was toward this end that Research Corporation organized -- frankly as an experiment -- the first national conference for new science department chairmen in the summer of 1971. That meeting was built around the premise that a new head should benefit from intense exposure to and close association with more seasoned chairmen who had been conspicuously effective department heads, and with other recently appointed chairmen who were probably encountering some of the same problems as they took up their new jobs.

Participants in the first conference, limited to liberal arts colleges, were nominated by the presidents of 100 institutions suggested by the four Regional Grants Directors of Research Corporation from their knowledge of science departments in their geographic regions. Seventeen candidates were accepted, with the attempt being made to choose those who were young, active in both teaching and research, and strongly recommended by their presidents for their potential leadership qualities. In addition, a reasonable distribution by geographic area and scientific discipline was sought. The four resource leaders were chosen from nominations made by the Regional Grants Directors of the foundation on the basis of their distinguished records as leaders of science departments.

The results of the 1971 conference were sufficiently

promising -- both in terms of the participants' reactions and the observations of the foundation's Grants staff -- to warrant a second year of the experiment. In the summer of 1972 two similar conferences were held, one for private colleges and one for public, predominantly undergraduate colleges and universities, in the belief that the problems facing the two types of institutions were different enough to justify separate programs.

In 1972 the method of selecting participants and resource leaders was the same as that of the previous year. Unfortunately, the Program Consultant, Calvin A. VanderWerf, who had been a resource leader at the 1971 meeting and was scheduled in the same role at both meetings in 1972, was unable to be present at either. He was replaced by members of the foundation's Grants staff -- Sam C. Smith at the conference for private colleges and Kendall W. King at the meeting for public institutions.

Twenty new science department chairmen took part in the conference for public institutions held at Snowmass-at-Aspen, Colorado from June 26 to 30, and 16 were participants at the meeting for private colleges at Point Clear, Alabama from July 10 to 14. At both conferences the daily schedule was essentially the same as in 1971: morning and evening sessions,

with afternoons left free for rest, recreation or informal discussion.

The report which follows is that of the conference for public institutions; a similar report is available on the meeting for private colleges.

As was true of the "Notes on the 1971 Conference for New Science Department Chairmen," this report presents the highlights of the 1972 conference for public institutions in the informal tone of the meeting itself, with references to individuals or specific institutions being generalized or omitted. The comments reported are mainly those of the resource leaders, unless otherwise identified, and there are obviously some personal observations which may not be generally accepted.

However, there are in the following pages a number of ideas which have proved useful in practice; it is hoped that they may be of some assistance to new chairmen who are suddenly confronted by a whole new set of problems and challenges.

PERSPECTIVE --

ACCOUNTABILITY TO SCIENCE AND SOCIETY

The role of the predominantly undergraduate public institutions represented at this conference is different from that of the private colleges or major universities. They are typical of the non-elitist state colleges and universities which have enjoyed a large expansion during the past 25 years with increasing, albeit relatively limited, monetary support. As such, these institutions perform a very valuable and distinctive role as the major instrument of low-cost mass higher education. The faculty and staff are, in a very real sense, civil servants.

Public colleges and universities generally serve specific geographic areas or ethnic groups. They have the responsibility to provide higher education at the undergraduate level equal in diversity and quality to that provided by the older established state universities. They

are expected to provide the fullest education possible for a broad mix of students. The admissions requirements in many states are such that any student with an average high school record has an opportunity to enter and try for a college education. At the same time there are a number of very bright students who, for a variety of reasons, attend the local college. Many students attend only part time. These institutions and their departments assume the responsibility to provide higher education needed by the constituents of the area. In the broadest sense they are the peoples' universities.

It is of paramount importance that such institutions, individually and collectively, fulfill the academic role assigned to them by the state legislatures, basing their claim for continued support upon real accomplishments. Increasingly, the value of science to society tends to be measured in terms of student and faculty contributions to, or involvement with, the social and ethical implications of science. Scientists tend to measure their own worth in terms of the contributions which they make to a deeper and more comprehensive understanding into the working of nature. Science cannot develop fully unless it is pursued to gain knowledge and new insights. But it will not survive unless it is used wisely for the betterment of humanity. We have

a responsibility to the general public to demonstrate the value of the discipline to society. Each department of the university must be able to relate its goals and accomplishments to the broad range of societal problems.

In this institution-society interface, the chairman is a key man. While he is usually selected on the basis of his academic achievements, he shortly discovers that the responsibilities of the office are quite different from those for which his training has prepared him. He is the most direct access to administration for the students. At the same time, he is the representative of the administration to the faculty and students, acting as the interpreter of goals and setting forth programs to achieve them. He is the advocate for administration's policies and decisions while also acting as the advocate for faculty proposals and grievances. He is, further, the only level of administration at which disciplinary knowledgeableness is assumed. In this bewildering maze of cross-responsibilities, the chairman serves best when he recognizes the broad responsibilities of the institution and the value of other departments and segments of the university community, as well as those of his specific discipline.

THE CHAIRMAN WITHIN THE COLLEGE STRUCTURE

Relationship with the Administration and the Goals of the Institution

The institutions represented at this conference are characteristic of a broad segment of public, predominantly undergraduate colleges. Typically, the institution has clearly stated, but usually very broad, goals which include providing educational opportunities for the general public within its geographic region, providing a full program of research and instruction, and providing instructional programs and learning situations which allow the students to reach their fullest potential.

Departmental goals, unfortunately, are often less well defined. Science departments are usually assigned roles based on their importance in the general education of all students, as well as the preparation of science majors in a science-based technological culture. Thus, individual departments have specific roles for the majors and pre-

professional students while, collectively, the science departments are responsible for the general, liberal education of non-science majors. It is important to recognize that department goals must be compatible with and supportive of the institutional goals -- the whole must equal the sum of the parts. Evaluation of the degree to which institutional goals are achieved requires assessment of the effectiveness of each department in reaching its goals. These departmental goals need to be quite explicitly stated by the chairman, brought to the attention of the faculty repeatedly, and carefully explained to new faculty members in order to orient them for effective service.

The administrative structure of the participants' institutions is quite similar to that of the vast majority of colleges and universities. Most institutions have a four-tier structure consisting of a president, vice president for academic affairs or dean of the faculty, college or area divisions and, finally, the individual chairman for each discipline.

The Upper Administration. As the link between society and the institution, the president must present the achievements of the institution both to his governing board and to the taxpayers, as well as justifying any expansion or new

programs. The president expects his academic and operational administration to manage the affairs of the college in such a manner that progress is made toward achieving the goals. Generally, presidents are not scientists. Yet they must be able to justify the need and importance of science programs to modern society and to understand the inherent higher cost of science programs. This understanding and sympathy for what the sciences are trying to do must ultimately come from the individual chairman.

The Chairman and the Upper Administration. The chairman is the primary "grass roots" administrator. He functions in a dual role. As part of administration, he is the manager of a specific segment of the academic program. At the same time, he represents and is a part of the faculty. He must, aided and supported by the faculty, provide the academic leadership for the development of high quality programs within the framework of institutional responsibility and goals.

Just as the president needs to understand what is going on in the institution, the chairman must know and be devoted to the goals of the institution, whether he comes from within or without. It is imperative that each chairman have conferences with the various administrative officers until he

understands the goals, their implications for his department and the expectations of the administration.

Once the chairman knows the upper administrative stance, he should work toward building the best possible department. Taking the initiative, he can rally his faculty around existing programs and encourage them in the development of new programs. By providing the climate and inspiration for noteworthy teaching and research, he can help the faculty achieve their ambitions toward establishing a strong academic department.

One of the most important functions of the chairman concerns the step-by-step development of proposals for new programs. If the chairman is involved in the plans right from the start, he can informally communicate departmental thinking to the dean, getting, in return, feedback from the upper administration. Not only does this help keep the dean informed on what is going on, but it may help to sharpen the proposal or its presentation.

The Chairman as a Pipeline for Communication. One important role of the chairman is as the pipeline for communication between the administration and his faculty. He must be open and informative to both groups. It is clearly his responsibility to communicate ideas, plans and decisions

of the administration to the faculty. The chairman should create a forum for healthy discussion among the departmental faculty members. Ideas and proposals from his faculty should be brought to the attention of the dean at various stages of development, reporting the response of upper administration back to the faculty. There should also be good horizontal communication between chairmen or their equivalents.

As the pipeline for communication between faculty and administration, the chairman will have a significant influence on major changes in the role or goals of the institution. Since many public undergraduate institutions are rapidly changing their roles, this can be quite important. It was suggested that if faculty members are responsive to even rumors of any important change in the institution, they will attain a greater voice in the formulation of new roles and goals.

Several methods of securing greater departmental input into the administration have been tried by the participants and resource leaders. Informal ad hoc meetings of faculty with key administrators have proven effective in one case. A bi-weekly meeting of deans and heads was found to be quite effective in promoting good communication. There was divided opinion on the value of the faculty senate in promoting good communication. One chairman found words ineffective until

he could actually get the administrator to come down to his department and see what was going on. Sometimes the students are able to get the message across to a recalcitrant administration; however, there are serious drawbacks to this procedure.

The System Has Its Flaws. It should be recognized that, in many instances, the administration falls short of the ideal. Some administrators are detached and it takes great effort to develop good communications. Certain of the participants' institutions are multiversities with remote, hard to find, central nervous systems. Also, there is a movement in many states to centralize the administration and strip the local administration of much of its power. Cost accounting is here and most will have to learn to live with it. One participant indicated that, through careful planning, his department has been able to decrease costs per student-hour without increasing teaching loads. Others reported that dollars are so intimately tied to the numbers of students that they are virtually handcuffed in making any changes or improvements. While the dimensions of the problem are not clear, there seemed to be some consensus that an administrative crisis does exist in many state systems. It was also pointed out that problems can be over-dramatized. When always fighting brush fires, goals are often forgotten.

Chairmen must take minor perturbations in stride, keeping their composure at all times. An amazing number of problems solve themselves with time. Chairmen can create a positive atmosphere by keeping departmental goals before the faculty and directing their energies toward achieving them.

How to Keep from Being Buried by Routine Duties. Chairmen are flooded with a deluge of recurring paperwork that can dull their initiative and lull them into a false sense of accomplishment. There is a constant flow of requests for various bureaucratic factual data, reports, schedules, and budgets, all with imminent deadlines. Frequently, the requests are so numerous that the chairman may adopt the attitude, "if the dean (or president) wants it, let him ask for it." Such an attitude abdicates all creative leadership and innovation to the accounting machinery. Routine procedures to handle the paperwork should be developed, with delegation of some of the responsibility to other faculty members. Statistical data and reports seldom reveal the true nature of a department. It is much better to keep the dean advised of what is going on through informal channels.

A common flaw in college administration is that the higher one goes the less opportunity there is to give serious thought to anything other than pressing problems of

the moment. The chairman should set aside free time in his schedule which he can devote to the very necessary exercise of unhurried thought.

In summary, the chairman is the chief link between the administration, the faculty and the students. The dean can help, but he can't do the chairman's job. Chairmen should seek the dean's advice and help whenever needed. The chairman has authority -- "use it or lose it; if you haven't got it, get it." Most administrators recognize there is little responsibility without authority. It is not a question of "them and us" -- rather, the administration is there to help.

Coordinating the Department with the Non-Academic Departments

Non-academic departments, such as the business office, registrar, admissions, alumni and giving, press office and institutional planning, often operate through a different chain of command than the academic program. The department chairman must understand the lines of authority if he is to work effectively with other units within the university. Ideally, each non-academic department in the university should fill a supportive service role in a smooth and efficient manner. In practice, however, there are frequent breakdowns in the level of service provided due to lack of

communication, understaffing, etc. When this occurs, the chairman must assume the role of trouble shooter in order to correct deficiencies in the delivery of supportive services.

Ideally, chairmen should work through normal channels; however, the channels are sometimes too narrow and ineffective. In this event, it may be necessary to establish modes of dealing directly with those in a service role. It is the chairman's responsibility to insure that his staff receives the services which it requires. He must develop a mechanism for doing this without expending a great deal of his own time in the process. Often this is done by adding personnel with specific responsiblities, for example, a secretary to keep budget and grant records, or by delegating various aspects of the problem to faculty members who have interests or talents which can be brought to bear. In one institution there were two generally recognized modi operandi. One, referred to as the "high road," followed normal channels. The other, known as the "low road," consisted of several different means of circumventing the normal procedures. The most straightforward and acceptable was simply direct dealing with key people.

Not recommended were the more devious and potentially destructive circumventions of channels categorized by the

following descriptive titles:

- "The End Run" -- go directly to the president.
- "The Statue of Liberty" -- enlist student support.
- "Gotterdämmerung" -- go directly to the board.
- "Armageddon" -- go to the local press.

By and large, the participants seemed to find that establishing effective relationships with the non-academic divisions was one of the most frustrating problems they encountered. The consensus of the participants and resource leaders was that the key to getting good service from non-academic departments is to treat them as equals. Too many faculty members tend to regard service personnel as underlings to be ordered about. One department made a point of learning and using the names of all service people with whom it dealt, and then attempted to understand their problems and acquaint them with the department. Janitors were invited to regular meetings by another department. Basically, departments which treated supporting staff forthrightly, with respect and commendations for a job well done, had few problems.

Administrative assistance for chairmen can be accomplished in many ways. Some departments have a faculty member who devotes half-time as an administrative assistant. Some of the larger departments support special secretarial

assistance through internal or grant funds. Others found involvement by faculty members to be helpful in admissions and recruiting, alumni relations and public relations.

Coordinating the Department with the Other Academic Departments

We live in a technology-based society in which the sciences play an important role. Victor Weisskopf, in an excellent article, has pointed out a family of relationships by which science influences and is influenced by society.[1] There are those who would, however, dispute the value of science in solving current problems and some would even limit the pursuit of science in the hope that this would, in some magical way, correct the deterioration of our planet earth. Over the past few years, as this scientific backlash has surfaced, scientists have begun to recognize the need for a greater public appreciation of scientific pursuits and their contribution to our society. No longer can the scientist be content to remain totally immersed in his work and isolated from the world about him.

How can the chairman and members of his department play

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1. "The Significance of Science," Weisskopf, Victor F., Science, 176, 138-146, 1972.

a role in this process of broadening the public understanding of their discipline?

Knowledge of Science. First, the chairman and his faculty must know what science is in the broadest sense. This requires a knowledge of the history of science and an appreciation of its interrelations with other disciplines. There are a number of excellent books on this topic. Four especially good books or essays were suggested:

- "The Structure of Scientific Revolutions," Thomas Kuhn, University of Chicago Press, 2nd edition, 1970.
- "Science and the Shabby Curate of Poetry," Martin Green, W. W. Norton & Co., Inc., 1965.
- "Public Knowledge, the Social Dimension of Science," John Ziman, Cambridge University Press, 1968.
- "The Imperfections of Science," from "Science & Imagination," selected papers of Warren Weaver, Chapter II, 35-54, Basic Books, Inc., 1967.

Coordinating with Other Science Departments. Science departments should consult with one another in a friendly, open manner concerning methods, procedures and curriculum. Often this can lead to very constructive service courses, maximizing the impact of the discipline on students from other areas of

science. Sometimes areas of duplication can be eliminated. Some departments have found team-taught interdepartmental courses, such as an introductory chem-physics course, to be effective.

Coordinating with Non-Science Disciplines. There is a real problem facing science today which results from not reaching the citizenry with the real nature and purpose of science. Pressure to create interdisciplinary courses can be helpful if the right persons are available. Most successful courses of this kind require the presence of two professors in dialog, with substantial participation by the students. Examples of courses cited were science in literature, science in art and science in music. While there may be some danger in proliferation of courses, results will be worth it if student interest is created and learning stimulated. It was also pointed out that this may go beyond simply a service to the student because of its value to the broad education (not training) of students and the expansion of faculty thought.

Responsibility in Teacher Education. Without downgrading the importance of educating secondary science teachers, the training of elementary science teachers seems at present to

to be a more crucial need to which little attention is being given. Responsibility for educating teachers belongs to the university and education departments have usually been assigned the responsibility for training science teachers. One participant suggested that perhaps elementary school science teachers obtain adequate informal training. In fact, however, experience shows that elementary science teachers are poorly trained in even the rudiments of science. One of the findings of the Panel on Physics in Education, Physics Survey Committee, shows that most science teachers at the elementary school level have poor or no preparation in science.[2] Elementary school is the point where many students form their first impression of science for better or worse.[3] Obviously, this is a crucial point in the public understanding of science. Reform must come about by revising the way science is taught in the elementary grades. Since the market for new teachers has shrunk to the point where it would take years before any impact would be felt, this must be done through in-service programs for

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2. "Physics in Perspective," section by the Panel on Physics Education, National Academy of Sciences report, 1972.

3. "Science in Liberal Arts Colleges," Snelling, W. Rodman and Boruch, Robert F., Columbia University Press, 1972.

existing elementary science teachers.

What of the protective education department which maintains that instigating such things is within its province alone? There are ways around this problem. Nine of the participants' departments currently have faculty members teaching in the education departments. Working directly with the education people, they operate within the system. Also, many education departments are in dire straits and welcome any way to expand their activities. There seemed to be good agreement that where a department is seriously interested in teacher education, a means can be found to become involved.

THE CHAIRMAN, HIS FACULTY AND STAFF

Program Planning

The image of science in the public sector dictates careful, responsible planning. The current shrinkage of openings for people trained as scientists does not mean there is a surplus of scientific thinking in society as a whole. Rather, most scientists and studies are in agreement that an understanding of science by the general public is sadly lacking. We ought not to restrict our justification for science programs to job training alone, but should also attempt to build broader public understanding of science. In this light, program planning takes on new urgency and provides the opportunity to develop new educational programs.

Revision of Departmental Majors. Foremost in the thinking of many departments is the need for revision and rethinking of the program for undergraduate majors. This requires constant

examination of future trends in educational needs. The danger of training becoming too rigid and formalized was pointed out by the example of the ACS Committee on Professional Training -- approval of undergraduate chemistry majors. Here, when a school has a number of students needing remedial work or combined majors, the prescribed curriculum allows little flexibility. Thus, the professional major becomes a pre-Ph.D. program which stifles innovation on the part of the department and makes broad preparation for a variety of roles in society difficult. It was pointed out that many graduate physics departments find the lack of a solid physics background is not a significant deterrent to good student performance at the graduate level. Greater emphasis on studies in fields other than the major was urged. The science major of the 1970s will probably have a much broader grounding in the fundamentals and principles of the complementary scientific disciplines. Likewise, science majors should also be encouraged to broaden their understanding of the social sciences. Effective academic advising will be needed to make best use of the opportunity for broader training.

New Undergraduate Programs. New undergraduate programs demand continued attention. The obvious examples are the many new

efforts in "relevant" subjects such as ecology and the environmental sciences. A built-in flaw of the new undergraduate major programs in such broad areas is that they lack intellectual depth. There seemed to be general agreement that sound training in one discipline would provide a better foundation. The suggestion was made that in some cases, such as physics, a three-year major might have advantages. Certainly the three-year major is receiving renewed consideration, particularly as a means of shortening the length of time required of medical students. One school has developed individualized majors tailored to the interests of each student -- an adaptation of what many private liberal arts colleges have been doing.

Graduate Programs. Graduate programs are particularly troublesome at this time. In physics, the science discipline most seriously affected by the job shortage, people with B.S. and M.S. degrees are much more marketable than Ph.D.s. Graduate programs at the great preponderance of emerging "teachers colleges" cannot be justified in terms of national manpower need. Yet 14 of the participants' institutions have graduate programs, primarily at the master's level. Justifications for a limited M.S. program were given as (1) to fill a need in the local community, (2) to provide a stimulus to the research

efforts of the faculty, (a master's program helps sustain faculty research), (3) to provide teaching assistants and (4) to accelerate acquisition of the sophisticated equipment needed in good undergraduate teaching and research.

Some cautions were voiced on graduate programs. Care needs to be taken that an M.S. program not be built on students inferior in ability, poorly trained and simply exploited to reduce faculty teaching loads. Likewise, a good M.S. program requires a research-oriented faculty. Graduate programs are not the panacea to many chronic departmental needs, such as shortage of equipment; a graduate program may alleviate undergraduate equipment deficiencies, but it creates a whole series of new equipment and maintenance needs.

Unless there is a real demand for graduate training from local industry, new graduate programs seem hard to justify. Occasionally, a pilot interdisciplinary program may be justified. There is also a renewed interest in combined B.S. -- M.S. programs over a four- or five-year period. The four-year B.S.-M.S. can be particularly adaptable to gifted students.

Creating a Distinctive Department

The essential ingredients which make for a good department are quite straightforward:

- Articulate a group of goals or departmental objectives.
- Select people who have the requisite abilities and will fit into the department, embracing its goals. Seek out faculty members who "hurt" if they do not have opportunity for research and creative teaching.
- Foster a climate for scholarly pursuits.

Once you have an able and aggressive faculty, its members must be provided with sufficient time to exercise their creative abilities. While lighter teaching loads are an obvious answer to the time problem, in many cases this is not feasible. More effective utilization of time can provide a real boost to research-oriented faculty. Block scheduling -- free days in the midst of an otherwise busy schedule -- offers opportunity for periods of uninterrupted work. Other time-savers, such as minimal committee assignments and meetings, along with alternate light and heavy semesters, can provide more time for research. Active faculty members must have the opportunity and the encouragement to engage in professional activities and to develop professional contacts.

It should be recognized that the preceding discussion defines the strength-distinction of a department in terms of

traditional indices: the quality and quantity of the research being carried on. The question was raised as to whether a department which emphasizes good teaching and turns out well-trained graduates who are able to secure jobs readily might not also be classed as distinctive. The response was that the emphasis on good teaching is so strong today that the best possible job will be done as a matter of course. Inspired teaching plus good research is the ideal combination. Persons combining both characteristics are available today and departments should not settle for anything less.

Nonetheless, several of the participants expressed concern over the criteria for measuring strength or distinction. There was some feeling that a better yardstick would be the quality of the educational program. As institutions of higher education come under increased scrutiny, accountability becomes of more concern. The day has come when teaching load and activities must be justified to the legislature and taxpayers. Science faculty must be prepared to articulate the achievements of their department and the rationale for what they are doing in readily understandable terms.

The health of a department can be measured in many ways. Most of the national scientific societies (ACS, AAPT and AIBS) have visiting scientist programs. Departmental goals

should be discussed with any evaluator before he makes his judgments -- it will help him do a better job. Departments will, for example, vary quite widely in the emphasis placed on research. Research can be pursued at the frontiers of science at one extreme, to the largely pedagogical emphasis at the other. While there is clearly no single gauge of the quality of a department program, the atmosphere for inspired teaching and good research soon becomes apparent to the experienced visitor. The chairman can, through the numerous measures within his control, effect changes for better or worse. Traditional indices such as publications, number of majors, outside research grants, performance on standard examinations, etc. are helpful to the chairman and the outsider in assessing the quality of the department. Open discussion in faculty meetings of departmental goals and the progress the department is making toward the goals can help to focus department efforts.

Hiring, Promotion and Tenure; Staff Evaluation and "Creeping Legalism"

Recruiting of Faculty. Hiring a new faculty member seems straightforward at first glance. With the dearth of good positions, there should be no problem in obtaining first-

rate teachers and scholars. Despite the fact that there are numerous applicants for any academic opening today, securing the right person requires just as much effort as it ever did. Different institutions have different needs. It was pointed out, for example, that black institutions look for the ability to identify with students, in addition to professional and teaching qualifications. Size can also influence hiring significantly. A small department must hire with a view to bolstering particular areas. Once a department has achieved a "critical mass," then it can seek the best man regardless of his specialty within the field.

Procedures and criteria for filling a new position vary quite widely. Some states require by law that a position be advertised broadly. Others will allow a position to be filled without any public announcement. Referee letters are suspect, but telephone conversations with reliable personal contacts who know the applicant are essential. Grade-point averages for graduate school are uniformly high and thus of dubious value. There was considerable disagreement on the value of undergraduate grades. There was, however, fairly general agreement that grades were of minor importance. Performance in research and teaching, publications and ability to get along well with others were criteria that most felt to be of

considerable importance.

Other than the obvious means of direct advertisement for candidates, several means were suggested for securing names. Conversations with leaders in the field can be an excellent source of candidates -- particularly if you know them personally. One of the experienced chairmen customarily asks an active research group in the field to suggest names. Word-of-mouth recruiting in general requires a knowledge of the leaders in the field who can and will identify superior candidates. Once a candidate is identified, his references should be asked specific questions, such as ranking of applicant vs. outstanding names in his field at a comparable stage of their careers. This should be followed by careful conversations with people who know the applicant. Sometimes it is advantageous to have two letters, one frank and open, one for the dean!

When the top candidates have been chosen, several candidates should be brought to the campus for interviews if at all possible. Fifteen of the 20 participants' institutions indicated that they could bring in at least three candidates. This is the point at which it can be determined whether the candidate's personality will fit in the department, and impressions gained as to his true interest in the

school (judged by his questions about the school, students, etc.) and his compatibility for the position. Most institutions require a seminar or teaching of a class, which should reveal if the applicant has any ability at lecturing. In all of the hiring procedures, it is important to involve the faculty as much as possible.

"Affirmative action," the HEW edict, has also brought a new dimension to the recruiting -- raiding of faculty. The search for minority group faculty members in order to be in compliance with federal quotas has brought about frenzied bidding for available candidates. Black colleges have been especially hard hit by the raiders. It was pointed out that minority group faculty members are seldom found through normal channels. Science chairmen at black colleges are constantly getting letters which include statements to the effect, "we are looking for a good black" or a "good" minority student. These immediately find their way to the waste basket. It was brought out that there are many blacks and Chicanos who are very capable and need only an opportunity to show what they can do. Most chairmen at black institutions are interested in seeing their colleagues advance and will respond to a sincere letter requesting the names of any faculty members or students who might be candidates for a good job opening.

It was pointed out that black institutions are also receiving pressure to integrate. An incident which illustrates the intensity of raiding in today's job market is the story of the predominantly white institution which, in its eagerness to secure a black faculty member, lured one away from a black college at higher than usual salary and rank without bringing the man on campus for a personal interview. To its chagrin, he turned out to be white.

Reviving Unproductive Faculty Members. While careful hiring is certainly a primary method to upgrade the faculty, most of the participants could not foresee much growth and, hence, hiring will probably be primarily of a replacement nature. In most institutions represented, however, a large percentage of the faculty members were hired when standards and expectations were lower or different and the available candidates had many employment opportunities. Consequently, there is a substantial "deadwood" problem in the science faculties of most predominantly undergraduate state universities. Most of these individuals have tenure and it was pointed out that removal of tenured faculty is a very risky and traumatic procedure.

There was substantial agreement that by far the most advantageous means of handling this problem was to find ways

in which such faculty members can become productive, contributing members of the department. A number of possible activities were suggested. One chairman has been effective in encouraging older faculty members who have been inactive in research to team up with colleagues who have active research programs going. Others were able to assign specific departmental bookkeeping and managerial tasks to individuals who found this attractive. One chairman found that a particularly personable but inactive faculty member was really effective and enthusiastic in working with the alumni. A chairman must carefully evaluate each faculty member to determine roles which he can fill within the department. Inactive faculty are often very competent -- in fact, a common reason for non-productivity is that the perfectionist fears failure to the point where he is reluctant to run the risk that he might fail. It takes patience and real effort to inspire people who have been resting on their laurels too long; however, success will be only that much sweeter.

It was suggested that where extended attempts fail to encourage productive involvement of a faculty member within the department, a sabbatical leave might be in order. Often, faculty return from such an experience with new perspective and enthusiasm. A variation on this would be a short-term

swap of problem faculty between departments in the hope that a change of atmosphere might have the desired effect. In all attempts at rehabilitation it is better to use a carrot than a stick.

More severe methods were suggested for dealing with recalcitrant faculty members after all other approaches have failed, among them isolation from departmental affairs or "freezing them out." While this may occasionally work, it may also produce schisms in the department that are hard to heal. Some chairmen have found student evaluations an effective means to shame faculty members into doing a good job of teaching, or alternatively, to cause their resignation.

Dismissing Tenured Faculty. The last resort is dismissal. When a faculty member is clearly making trouble in the department or is completely incompetent in his teaching, this may be the only route to go after all attempts at rehabilitation fail. Dismissal of a tenured faculty member requires an extremely well documented case and should be done with the full knowledge and counsel of the dean. A very graphic example of the steps necessary to build a case for dismissal of a senior, but incompetent, faculty member whose actions were undermining the department was provided by one participant. Acting with the concurrence of the dean, a substantial body of evidence was

collected, including tape recordings of lectures demonstrating repeated scientific inaccuracies and samples of inadequate examinations. When confronted with the evidence, the faculty member chose to resign. Distasteful as the task may seem, sometimes it is the only course of action that can preserve the department.

A word of caution was also voiced about the dangers in building a case for dismissal on grounds of incompetence in teaching. Since any definition of good teaching is, at best, subjective in nature, it becomes quite difficult to document that a faculty member's teaching is inferior. Unless there is clear evidence of erroneous or false teaching, it will be difficult to build a good case.

Evaluating Faculty. Two schemes for evaluation of faculty were presented. One was a system based on an annual report from each faculty member on his total academic activities for the year. The form used for the report had been developed by the head and his faculty who put together a comprehensive list of all significant specific tasks contributing to the teaching and research charges of the department and institution, and to the general health of science as a whole. For each of these a point value had been agreed upon, representing the consensus judgment of the significance of each activity.

For most items provision was made for the chairman's assessment of the quality of the faculty member's work. Totaling all these values gave a quantitative estimate of each faculty member's overall activity for the year. The chairman then made a plot of each individual's score vs. salary increment for the year, with adjustments for superior or inferior performance. Following this, each faculty member conferred with the chairman concerning his performance.

Though this scheme was initially viewed with apprehension by the faculty, it gained wide acceptance and had certain advantages. Each faculty member made his own evaluation and understood the system. The system allowed each person to put his major effort into activities best suited to his talents with assurance that he would be recognized and rewarded. Those who performed well were rewarded by a relatively objective procedure rather than the traditionally very subjective judgment by the head. Those who did not, recognized that if they would work at it, they could improve substantially. The system promoted excellent faculty morale.

Another type of evaluation which was presented by one of the participants was a very sophisticated system of student evaluation. At this participant's institution, it was found that student evaluations can be useful in judging the effec-

tiveness of faculty members in their teaching. This scheme seems to pinpoint instructors who are substandard in their performance, with the result that ineffective teachers are literally driven from the institution by the students' recognition of their inadequacy. While student evaluations tend to rate instructors higher than do peer groups, they do tend to correlate well in their general conclusions. In the experience of the participant, student evaluations were a very effective means to weed out deadwood in the department and to help faculty members identify and improve on weaknesses in their teaching.

There were some negative points raised concerning student evaluations. One participant pointed out the problems in comparing evaluations of instructors in different courses. Another participant stated that at his institution the correlation between productivity and favorable student evaluations was good initially. With time, however, some of the unproductive faculty who are "nice guys" devise ways to influence the student evaluations and receive high scores.

There is obviously an almost limitless number of variations and combinations of the two evaluation methods presented. Perhaps most important is that some fair, impartial evaluation scheme be developed which is thoroughly understood by the

faculty.

"Creeping Legalism" and Unionism. "Creeping legalism" is the growth of public and institutional laws and policies which restrict the autonomy and freedom of action of college administrators, including chairmen. There seems to be a trend toward politicizing and centralizing state educational systems with a concomitant introduction of new rules and regulations. These gradually weave a web of inflexibility into the institution that hampers academic freedom and thwarts efforts to build a good department. The result can be a serious erosion of the chairman's freedom of action in upgrading his program.

One of the most controversial issues to reach the college campus in some time is that of collective bargaining -- unionization of college faculties. Two of the participants' institutions have adopted collective bargaining agents. In one case, this came about through an act of the legislature requiring all employees of the state to enter into collective bargaining agreements. The other agreement, in the opinion of the participant, resulted from the failure of the state to act responsibly in providing reasonable salary increases for the previous fiscal year. In both cases, the unions claim to be primarily interested in bargaining for salary and working conditions.

Two questions were specifically raised: what effect will unionization have on the chairman and what effect will it have on academic freedom? To the first, both chairmen felt that their power and role would be diminished. The chairman at whose institution collective bargaining is farthest along felt that inroads into academic freedom would occur. In both cases, they do not have enough experience to say definitely what the full impact will be. However, with court decisions ruling that department chairmen, unlike labor foremen, should be union members, it is clear that the position of chairman is in for major revisions in the future as unionism spreads.

Financing the Department

Departmental financing is a continuing problem. The major source of funding for all of the institutions represented is through their normal state budgets. Most institutions also find it desirable to supplement this base with outside funding from the federal government, private and company foundations, public charities and individuals. Proper financial planning requires assembly of the total budget from a variety of sources. And vigorous generation of external funding has been found at most institutions to be absolutely

essential to developing a more than mediocre program.

Setting Goals and Priorities. Many people put the cart before the horse -- they try to match programs to dollars. It is easy to lose control of departmental thrust by securing money for a project that some agency or foundation will fund rather than seeking funds to fulfill self-determined development plans. The chairman, in concert with his faculty, should take inventory of departmental strengths and weaknesses, using this base to identify development goals and plans before any attempt to secure funds is made. Specific stages for seeking funds can be established from this "blueprint." People who will carry a program through is the first essential; money comes later. The objective should be to obtain support to achieve well thought-out goals.

Finding the Appropriate Source for Funds. Identifying which branch of the money tree to shake becomes much easier once priorities are set. Most funding organizations have rather specific interests and goals. The college development office can often be helpful in seeking appropriate sources of funds for a specific proposal. It cannot be overemphasized how important it is to know the interests of the organization being approached and to have a definite, clearly stated proposal.

"The Foundation Directory"[1] and "Foundation News"[2] are helpful in determining organizations that might be interested in a project. Local and company foundations should not be neglected. Also, alumni who may be in a position to help, either individually or corporately, should be contacted.

Preparing the Proposal. A proposal should set forth what is planned, why it is worth doing and the specific plan of procedure that will be followed. Clear statements and careful honing are to be preferred over excess verbiage which may camouflage the true worth of the proposal. Zero in on a target -- use a rifle rather than a shotgun approach in seeking outside funding. Most young academicians need considerable help in framing a good proposal. The chairman and experienced members of the department can be of help in reviewing proposals before they go out; this can catch some obvious flaws. Many departments require that a proposal pass certain standards before it can be submitted to any outside organization.

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1. "The Foundation Directory," prepared by The Foundation Center and distributed by Columbia University Press, New York, Edition 4, 1971.

2. "Foundation News," published bimonthly by the Council on Foundations, Inc., New York.

Ideas for Departmental Financing. Several ideas were provided concerning departmental financing. It is very important for the chairman to know his budget and where it goes. The dean will expect this, particularly if a plea is being made for more money. One chairman pointed out that his department kept a sock for a rainy day. This small reserve, held out of the regular budget, was used as development money for the department.

A chairman should also be able to clearly identify costs within the department. Likewise, openness with the faculty on budget matters is healthy. A number of ways to provide spare change in a department have been devised. It is not unusual for an institution to have a "windfall," particularly at the end of the fiscal year. One chairman kept a list which was updated monthly by his faculty to show the current critical equipment needs in the department; he could thus take immediate advantage of such opportunities that arose.

There were also some ideas advanced to raise discretionary money for the department. A very lucrative scheme for departments with large numbers of students is production and sale of laboratory manuals. One participant pointed out that in his institution, the geologists contributed their consulting fees to the department to fund a seminar program.

Perhaps the most conspicuous example of real faculty dedication to the needs of the department was the faculty whose members challenged their chairman to contribute $200 if they would each put up $100 for a chairman's discretionary fund.

THE CHAIRMAN AND HIS STUDENTS

The Students' Voice in Departmental Affairs

Students today are better trained and less activist than in the late sixties. Most institutions are responding now to the student challenges and confrontations of a few years ago. A department does need to sample student opinion frequently to see how effective it is both on the undergraduate and graduate level. Likewise, the students should know that there is concern for their welfare and that their voice is heard in a systematic and meaningful way. But how can the student be more effectively and directly involved in university affairs? Informal input is irregular and really rather minimal at most universities. One solution seems to be more formal involvement of the students.

At one institution this was achieved through two levels of input. One consisted of a departmental student council required of all students. This group met twice each semester

in the absence of the faculty and members reported their gripes and suggestions. Much of their input was utilized and the process became a good morale booster. A similar council for graduate students formed the second level of input.

Student involvement, of considerable variety, had been experienced by a number of the conferees. Of the 20 institutions represented, six included students in departmental staff meetings. Several of these excused students when certain matters were under discussion. Of the participants who had experience with students in the selection of faculty, the general consensus was that they acted quite responsibly. There was less enthusiasm for equal representation of students on campus committees, with one participant feeling it was not effective -- and perhaps was destructive. Schools where students have been involved in committees found a considerable variation in student reaction from enthusiasm to "so what." The students' reactions were, in one case, very much conditioned upon whether or not the committee recommendations were adopted.

Some of the federal agencies seem to be encouraging more active participation by students in research and development of proposals. The NSF Student Originated Studies

program is oriented that way and the College Science Improvement Program and some NIH programs seem to be moving in that direction. One school with rising chemistry enrollments obtains such participation by having student-faculty recruiting teams. The general opinion seemed to be that greater student involvement in departmental affairs is desirable and, when managed well, has a constructive rather than a negative effect.

Recruiting Students

Student recruitment is a new topic to most public colleges. As enrollments fall off in the sciences, however, more and more departments are finding they must get out and actively seek students. The reaction to the efforts of the development and admissions offices was mixed. Some chairmen found that they could work quite effectively with these offices to improve enrollments. Others found the efforts of these offices to be totally inadequate. Generally speaking, direct involvement of the faculty in recruiting has been found to have a positive effect on department enrollments.

A number of suggestions for student recruiting were advanced. A brochure describing the department, particularly

any unusual aspects that may be of special interest to students, could be written. Various of the annual publications that summarize college programs were mentioned as means for getting the department before potential students. Since most of the institutions represented at this conference produce high school teachers, these alumni can be excellent sources for good prospects, particularly when the department makes an effort to keep them up-to-date on their activities. One effective means to let incoming students know of your existence is to send a follow-up letter to a list of science students who have been admitted (obtained from admissions officer) inviting them to visit the department. A very effective means of building a reputation within the state is participation of departmental faculty in science fairs, science club meetings, college days, Junior Academy of Science meetings, high school lectures, etc. Such visits offer excellent opportunities to meet prospective students and to get to know the high school teachers. One chairman has found that personal efforts with students already in his college have allowed him to bring a more reasonable share of the students into the physics department. Incorporation of students into the departmental program as research assistants, laboratory helpers, etc., also has been effective for many.

Students tend to migrate to where the action is.

Is recruiting students into the sciences unfair in view of the current job situation? This question elicited considerable discussion. Certainly production of scientists, particularly narrowly trained people, at levels near the peak years of the late sixties is unwarranted. Many chairmen now discourage all but their most able students from going on for doctoral studies. Particularly in fields such as physics, where the contraction of job opportunities is especially pronounced, there was some feeling that recruitment efforts should be curtailed.

Do scientists have the right to expect full employment of all their students? It was pointed out that many of the traditional liberal arts disciplines have had a chronic unemployment problem for years. Should the predictions come true about increasing rates of unemployment as productivity and automation increase, this situation will be even more pronounced. Scientists may have to adjust to a new situation in which a portion of their students are unable to find direct employment in their area of specialization. Broader training of undergraduate students should help alleviate this problem.

The picture is not completely bleak. Current interest

in environmental problems has created a number of potential positions which await only federal or state funding. New technology can create a number of new positions overnight. Departments need to be alert to the emergence of new technological needs which may offer employment for their graduates, for example, the recently announced need for 500 laser technologists in the clothing industry.

The Chairman's Role in the Students' Future

The department does have a responsibility to the majors in several ways. Many departments have taken the view that their responsibility ends with indoctrination in the subject matter of the discipline. The effective department must take a broader view than this.

Creative Education. Each student must receive the best possible education which will enable him to be a productive member of society in the future. With the exception of occasional return visits and letters of recommendation, the impact of the chairman on the student is essentially complete by the end of the senior year, or the end of the graduate period. The chairman must create an environment during the student's sojourn in the college that will optimally influence the initiation and

maturation of the students' educational process. Completion of a formal college education is not an end but a beginning. The department should launch the student on a long-term career of self-development and growth. An effective departmental curriculum to accomplish this should reflect the following considerations:

- A basic liberal education is essential to proper growth and development in a modern world. This is minimal preparation for an eventual leadership role in the scientific community and in the community as a whole. Adequate preparation in the social sciences and the humanities is essential.
- Adequate preparation in science demands that the students become familiar with concepts in the basic fields of mathematics, chemistry, physics, and biology. To a biology student, for example, this means that a mere nodding to the physical sciences is not enough; such a student is effectively limited by the amount of basic scientific knowledge in chemistry, physics and math which he has. Students must be given good counsel concerning the implications of any limitations in their previous training.

> Professionalism demands that students be instilled with the spirit of joy of the intellectuality of science. Enthusiasm for their field is probably one of the key characteristics that has to develop in their early intellectual lives. As they look back on their college education, they should be able to say, "those were great and exciting times, and the professors really loved their work." This is unlikely to occur if not enough time is spent on the application of science and the science methodology to everyday thinking to make them a real part of their lives.

Counseling on Job Opportunities. Students have a right to know what opportunities exist in their disciplines. Each student should be given sound counseling as to where his talents might be most useful. An overemphasis on graduate training has caused many departments to lose sight of the many opportunities in industry, public service and newly developing technological areas for scientists without graduate degrees. A very effective way to give the students a picture of what lies ahead is to invite alumni who are in government, industry, research and education to come back

to the campus for seminars and consultations with the students to help them decide more realistically where their talents lie. This can boost morale and inspire students. Summer job opportunities in industry and government can also expose students to some of the options.

Responsibilities after Graduation. Where does the chairman's responsibility end? Many would say it never does. The chairman and his department have a responsibility to foster the careers of their students beyond graduation. Some chairmen are always ready with the recommendation of a former student for a vacant post. Others become confidants and counselors to former students when they face difficult problems. The department that maintains a genuine interest in its graduates will find a real satisfaction in following their careers.

Training Graduate Teaching Assistants

Today we are seeing a healthy interest in the proper handling of graduate teaching assistants. The emphasis is on making them more effective teachers for their own good and that of the institution. In many universities up to one-third of the credit hours taken by undergraduates may be taught by teaching assistants. Universities have seldom provided any systematic training program in teaching for their graduate

students. Instead, the teaching function is often looked upon as a roadblock or irritant in the attainment of an advanced degree. The faculty has tended to look down on the teaching assistant while the undergraduates with whom he works may have attitudes ranging from respect to disdain. The teaching assistant is a de facto college teacher deserving less exploitation and a more meaningful teaching experience.

Frank Koen in a report of the Commission on Undergraduate Education in the Biological Sciences (CUEBS)[1] has quite ably outlined the "dimensions of college teaching." They are:

- Content mastery.
- Ability to organize a body of knowledge, to design a planned course, to establish instructional objectives.
- The management of learning effective presentation skills.
- Personal interaction with students in and out of the class.
- Ability to rigorously evaluate one's own teaching effectiveness.
- Professionalism.

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1. "Preservice Preparation of College Biology Teachers," 16-23, Commission on Undergraduate Education in the Biological Sciences (CUEBS), Publ. #24, 1970.

The development of programs for the training of graduate teaching assistants should take into account these dimensions, weighing each one in relation to local circumstances. Departments, for example, that have outstanding entering students may give less attention to content mastery than those whose entering students may require some remedial work. Models developed by other institutions may be helpful, but there is no substitute for a plan carefully tailored to specific institutional needs.

Both the CUEBS report and a monograph put out by the American Council on Education[2] have outlined the desirable qualities in programs for the training of graduate teaching assistants. In general, these build upon the dimensions which have already been cited. Three broad objectives that are inherent in both listings seem worthy of mention. Graduate teacher training programs should (1) strive to erase the stigma which has been the lot of teaching assistants, raising their image to a level consistent with that properly accorded to the role of college teacher, (2) provide a more meaningful experience for both the graduate student and the undergraduate

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2. "The Graduate Student as Teacher," Clark, K.E., Nowlis, V. and Rock, M., American Council on Education.

with whom he will work (plain and simple -- this is better teaching), and (3) develop reliable and objective procedures for evaluating teaching activities and the training program itself. There should be a feedback loop so that evaluation findings can be used to improve both the training program and teaching.

Koen also suggests a framework for a training program.[3] The core of this program would be active involvement of the vice-president for academic affairs by providing summer graduate student support to departments which mount an effective and successful training system. About one-eight of the graduate student's time should be committed to one term of training in teaching. The university should also provide a three- or four-day "pre-session" for new teaching assistants, covering the relevant principles. Each department should be offered considerable latitude in the program which it develops, subject to general institution-wide guidelines.

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3. "Preservice Preparation of College Biology Teachers," 33-35.

SUMMARY STATEMENTS

There are three paradoxes in higher education:

- The institutions represented at this conference are traditionally oriented toward providing training for a career and many have a long tradition of teacher training. Education of the future will, of necessity, be broader and more generally oriented.
- Many of the "emerging" public institutions are trying to develop a research orientation and reputation at a time when research in the traditional sense is losing its luster.
- Institutions are trying to recruit students at a time when there is an oversupply of scientists.

There are certain consequences of these statements for both the students and faculty: (1) greater breadth in students

will be desirable, if not essential, (2) the student will have to be given a basic education which will permit flexibility in his career and (3) research will need to be related to new opportunities. This may affect the kinds of research pursued, involving a greater degree of technology-oriented research. The teacher of the future will need to look beyond his educational competence in a given field, and have a broad viewpoint. There is an additional justification for recruitment: a teacher needs good students who are interested in his work if he is to thrive professionally.

The need for a broader look at science and more interaction between the sciences has properly received considerable attention. A broader perspective of science as a whole should evolve. Institutions of the type represented at this conference have a better opportunity to respond to this change in perspective because they are not so heavily committed to ponderous, inflexible departmental programs.

Appropriately, the development of faculty has also received considerable attention. The continued development of his faculty is the most important responsibility of a chairman in the emerging public college. Faculty need to be treated with encouragement and cajoling, being rewarded for achievements accordingly. The "new" attitude of science may actually

give some inactive faculty members a chance to find new challenges. Research expectations should be keyed more to the needs of undergraduates than to work at the cutting edge of science.

While the problems facing the chairman at the emerging public institutions may seem insurmountable, the challenges are by no means all negative in nature. As institutions in transition, there will be more opportunity for the development of innovative, flexible programs than may be the case at well-established institutions. Since the institutional goals may change or expand more readily, the chairman will be in a unique position to act as an agent of change.

Finally, a chairman must find a way to spend at least part of his time on creative activity. Each day and week he must reflect on his efforts and try to evaluate his achievements. Ways must be found to protect his time for self-preservation, self-enlightenment and self-satisfaction from the encroachment of everyday affairs. And each morning he might start the day with the following prayer:

"Dear Lord,

Help me through this day and deliver me from creeping legalism."

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